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U. S. DEPARTMENT OF AGRICULTURE.

FARMERS' BULLETIN No. 17.

PEACH YELLOWS AND PEACH ROSETTE.

BY

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SPECIAL AGENT,

UNDER THE DIRECTION OF B. T. GALLOWAY, CHIEF OF THE
DIVISION OF VEGETABLE PATHOLOGY.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.

1894.

FARMERS' BULLETINS.

Applications for bulletins of this series should be addressed to the Secretary of Agriculture, Washington, D. C.

[Farmers' Bulletins Nos. 1, 2, 4, 5, 8, 10, and 13 are not available.]

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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
DIVISION OF VEGETABLE PATHOLOGY,
Washington, D. C., May 11, 1894.

SIR: I have the honor to transmit herewith Farmers' Bulletin No. 17, on peach yellows and peach rosette, prepared under my direction by Erwin F. Smith, special agent of this Division. While the bulletin contains no new facts of importance, it brings together in convenient form the more important information on these subjects. This, in my judgment, is desirable, first, because the diseases are attracting widespread interest, and, second, for the reason that the bulletins heretofore published by the Division on these diseases have been more or less special in their nature and have been issued in such small editions as to be available to but comparatively few fruit growers.

Respectfully,

B. T. GALLOWAY,
Chief of Division.

HON. J. STERLING MORTON,
Secretary of Agriculture.

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PEACH YELLOWS AND PEACH ROSETTE.

PEACH YELLOWS.

Yellows is a disease peculiar to peaches and some closely allied fruits. It has been known for a long time in nectarines, almonds, and apricots, and has been observed recently in Japanese plums, but to what extent the latter are susceptible is not yet known. Other varieties of plums and other stone fruits appear to be exempt. The peach is the only susceptible fruit cultivated on a large scale in the region now subject to yellows, and for this reason what is said in the following pages will relate exclusively to this fruit.

DISTRIBUTION.

Peach yellows is widely distributed in the eastern United States, as may be seen on the accompanying map, and there is no doubt that the extent of infected territory is increasing every year, although rather slowly.

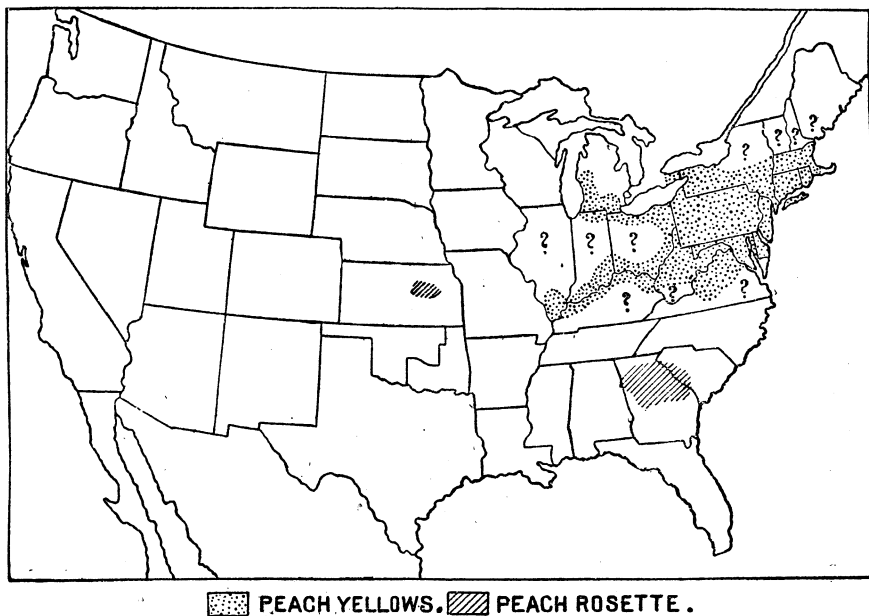


FIG. 1.—Approximate distribution of yellows and rosette. The interrogations denote that the exact limits of the disease are unknown.

The disease is more prevalent in some parts of the designated area than in others, but the localities most severely affected are the very ones most favorable to the growth of the peach and most extensively planted to commercial orchards. In recent years sporadic cases have been reported from several places outside of the limits assigned on the map, e. g., middle Georgia, southeastern Iowa, western Arkansas, and northern Texas. No specimens showing the disease have been received from these States, but statements from western Arkansas are quite explicit and leave little room for doubt that the disease occurs to a considerable extent in that locality. In the last decade this disease has been very destructive in Connecticut, New Jersey, New York, Pennsylvania, Delaware, Maryland, Virginia, Indiana, Illinois, Ohio, and Michigan, in places where formerly it was not regarded as serious.

In this connection it is interesting to note that generally ten or fifteen years suffice for the destruction of the orchards after the disease

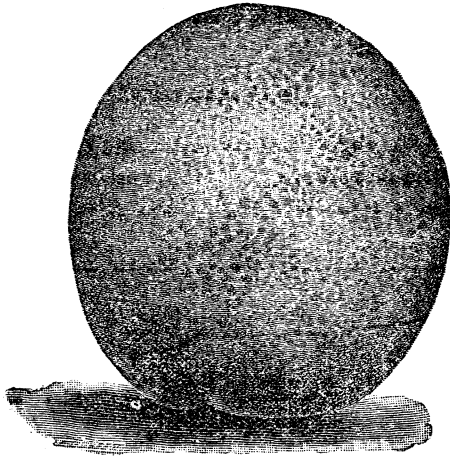


FIG. 2.—A premature peach.

is once well established, but that sometimes quite a long period intervenes between the discovery of the first scattered cases and that general appearance of the disease in most or all of the orchards of a region which is here meant by the expression "well established." The general movement of the disease on the Delaware and Chesapeake Peninsula and on the mainland of Virginia has been southward; in Michigan it has been north and east; and in New York, northwest.

In a number of localities the first cases have certainly appeared in young orchards obtained from infected districts, and there is reason to believe that in all isolated peach regions the first cases will occur in young trees that have been received from places already subject to the disease. Finally, so far as known, this disease has never entirely disappeared from any locality where it has once become well established.

DISTINGUISHING CHARACTERS.

Prematurely ripe, red-spotted fruits, and premature unfolding of the leaf buds into slender, pale shoots, or into branched, broom-like growths, are the most characteristic symptoms of yellows. The time of ripening of premature fruits varies within wide limits; sometimes it precedes the normal ripening by only a few days and at other times by several weeks. The red spots occur in the flesh as well as on the skin, making the peach more highly colored than is natural. The taste of the fruit is generally inferior and often insipid, mawkish, or bitter. Often this



FIG. 3.—Winter buds unfolding in autumn.

premature ripening is the first symptom of yellows. The peaches are then of good size and quite showy, and occur on trees in full vigor, upon limbs bearing abundant green foliage and sometimes also other fruits which afterwards ripen normally.

Often during the first year of the disease this kind of fruit is restricted to particular limbs or even to single twigs, which, however, do not differ in appearance from other limbs of the tree. The follow-

ing year a larger part of the tree becomes affected and finally the whole of it, the parts first attacked now showing additional symptoms, if they have not already done so. These symptoms are the development of the winter buds out of their proper season. Like the premature fruit, the date of this also varies within wide limits. The buds may push into shoots only a few days in advance of the proper time in the spring, or may begin to grow in early summer soon after they are formed and while the leaves on the parent stem are still bright green. This is a very common and characteristic symptom and is especially noticeable in autumn when the normal foliage has fallen (fig. 3 a). Usually under the influence of this disease feeble shoots also appear in considerable numbers on the trunk and main limbs. These arise from old resting buds, which are buried deep in the bark and wood and remain dormant in healthy trees. Such shoots are sometimes unbranched and nearly colorless, but the majority are green and repeatedly branched, making a sort of broom-like, erect, pale-green, slender growth, filling the interior of the tree (fig. 4).

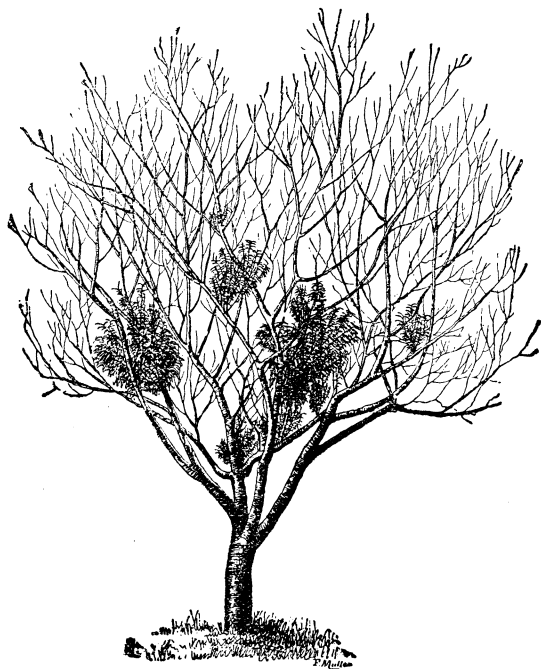


FIG. 4.—Yellows the fourth year.

Such is the general course of the disease, but there is no invariable rule as to its development, the unnatural shoots frequently appearing early in its progress and often attracting more attention than the premature fruit, especially if abundant or associated with a yellowing of the foliage. Following these first symptoms, which generally occur in green and vigorous trees, there is in successive seasons a gradual stunt-

ing of the tree and yellowing or reddening of the foliage. This discoloration of the leaves is noticeable at a distance and is undoubtedly responsible for the common name. During these years the original symptoms continue, the tree becoming more and more feeble until it finally dies, the parts first affected dying first. The progress of the disease is slow, an affected tree usually living from three to five years. The usual appearance of such a tree the fourth year is shown in fig. 4, the only living branches being a few broom-like growths arising from the main limbs.

HOW SPREAD.

When the disease appears in young trees, and particularly in a region previously free from yellows, there is good reason for suspecting the nursery, it having been established by repeated experiments that the disease may remain dormant for some time in buds cut from affected trees and afterwards appear in the trees grown from such buds. Fig. 3b is an illustration of this. The bud from which this shoot originated was cut in July from a very robust, thrifty watershoot on a healthy-looking branch of an affected tree. Nothing could exceed the vigor and beauty of this watershoot, and yet its buds contained the virus of the disease, which late the same season induced many of the winter buds of the daughter shoots to grow as here shown, although the original buds were set into healthy and vigorous seedlings, which had tops of their own. Of course all of these buds would have remained dormant until the following spring if the shoot had been derived from a healthy bud. Just how long the disease may remain in nursery trees without showing symptoms is unknown. In badly affected regions, where the likelihood of getting diseased buds is greatest, it is not uncommon to find affected trees in the nursery rows the following season, and experience and experiment leave no room for doubt that others showing no symptoms will develop them afterwards when set in orchards. The disease is also readily transmissible to healthy stocks, and can be made to finally destroy all parts of a healthy tree by the insertion of a diseased bud. The disease first appears in that part of the stock next to the inserted bud and subsequently in remoter parts. How soon the stock becomes affected depends in great measure on the character of the inserted bud. If this be taken from a plainly diseased shoot the symptoms appear in the stock sooner than if the bud is taken from such a vigorous shoot as that mentioned above. In either case the progress of the disease is slow. So far as yet known this transmission of the disease from bud to stock can take place only when there is a union of tissues, mere contact, even when close and prolonged, not transmitting the disease. Fig. 3c shows a stock shoot (seedling) to which the disease was transmitted by an inserted bud. Under favorable conditions such a seedling lived nearly five years after the insertion of the diseased bud, but never made much growth.

That yellows is also transmitted in some other way must be apparent to any one who has studied the disease at all carefully. In badly affected districts the disease makes a clean sweep and it is impossible to believe that all or even a majority of these trees brought the disease with them from the nursery. The well-established fact that trees with the soundest constitutions readily take the disease, proves that in such cases the cause of the disease must exist in the locality. Now if the disease is not induced in such trees by unfavorable local conditions of soil and climate, both of which explanations seem to have been ruled out by observation and experiment, then the only reasonable supposition is that they contract the disease from neighboring trees already subject to it. This inference rests on the fact that diseased trees are known to be full of a virus readily communicated to other trees by budding, and upon a great number of observations on the behavior of the disease in many badly affected localities.

By some the transmission of the disease has been attributed to the pruning knife, by others to diseased pollen. All that is definitely known is that the disease is communicable by bud inoculation; that trees with the soundest constitutions are subject to it; and that it behaves like an infectious disease, its first scattered appearance in a locality being followed after a longer or shorter interval by the occurrence of cases in many orchards, and this stage by the rapid destruction of the orchards.

There has been much speculation respecting the nature of this disease, inasmuch as climate and soil do not seem able to originate a plainly communicable malady, and no fungi, bacteria, or animal parasites have been identified as the cause. No fungus has been found associated with it constantly, and it is almost certainly not a bacterial disease, statements to the contrary resting upon evidence no careful mycologist or bacteriologist would for a moment be willing to accept.

At present peach yellows seems nearest allied to that phenomenon in plants known as variegation. It is now recognized that variegation in many plants (panachure) is a disease manifesting itself in stunted growth, imperfect assimilation, hastened development, and feeble vitality.* Moreover, in a number of variegated plants, e. g., jasmines and abutilons, this condition is transmissible to healthy stocks by budding or grafting, in the same way as peach yellows. The difference in these cases appears to be one of degree rather than of kind.

PREVENTIVE MEASURES.

With our present knowledge the cure of peach yellows appears to be impossible. Many reported cures have been investigated and found without merit. The claims made in behalf of some of these were

*There is also, as in yellows, an abnormal ratio of the ash constituents, potash and phosphoric acid being in excess and lime deficient.

manifestly with intent to deceive; in other cases they were made in ignorance of the symptoms of the disease and of what constitutes a cure, and generally by people not familiar with peach-growing. Faithful trial has been made of various fertilizers containing important plant foods. With some of these, especially caustic lime and fertilizers containing nitrogen, it has been possible to make diseased trees put on a greener and more vigorous growth, sometimes mistaken for recovery, but all such trees have continued to show symptoms of the disease and have soon relapsed into feeble growth.

So far, therefore, as we now know the only thing which can be done is to cut out and destroy all trees as soon as any of the signs described on a previous page have made their appearance. It is best to burn the diseased trees, roots and all, if possible.

In confirmation of this belief in axe and fire, we have the experience of the Michigan peach growers. In some localities, notably at South Haven, they have been fighting the disease in this way for the last twenty years, and though the extermination of affected trees has not been complete the results have been of such a nature as to lead the growers to believe that this annual weeding out has saved the orchards. Of several facts there can be no doubt, and it is difficult to draw from them other than one inference. First, this disease appeared at South Haven as long ago as 1869 in a few trees of a single peach orchard, becoming generally disseminated within five years and so destructive as to seriously threaten the prosperity of the peach growers. Second, the disease has not given serious trouble since the growers first began to wage their war of extermination, the extent of the orchards to-day being greater than formerly and their health and productiveness unimpaired. Third, there have been cases of yellows in this region every year since its first appearance, and the diminished prevalence is not easily attributable to other agencies, because in neighboring localities, where no effort has been made to stay its progress, the disease has prevailed extensively during this period, even to the destruction of all the orchards and the abandonment of peach culture in some regions. Even at South Haven there is evidence that a few years of general neglect would result disastrously, one or two men in recent years having neglected or refused to destroy affected trees, and the orchards immediately surrounding these having subsequently shown a larger number of cases than those in other parts of the district.

At South Haven and other places where the law is maintained it is customary to keep the orchards full by planting young trees in place of those removed. There are many such trees now in bearing and entirely healthy, although set in the very places occupied by diseased trees, and only a few months after their removal. Such "replants" sometimes develop yellows, but from an experience of many years the growers have learned that the disease does not show any decided preference for such trees. They are not immediately attacked and are

not more subject to it than others. At St. Joseph, Mich., where yellows appeared in 1866, and all of the orchards were finally destroyed, many new orchards cover the old fields. These have been planted during the last ten years and many are now in bearing. Nearly all of these trees are healthy and the cases of yellows that have appeared in the last few years are apparently attributable to neglect of destroying old cases rather than to any inability of the soil to bear healthy trees. It must be said, however, that there has not been here that general interest in the subject which is manifest at South Haven. There have been a few cases of yellows in a good many orchards, and there is every reason to think that history will soon repeat itself in Berrien County unless the law is rigidly enforced.

As was pointed out some years ago, the chief defects of the Michigan law are, (1) the inadequate compensation given to the commissioners, not enough to be certain of commanding the services of well-qualified men; and (2) the want of a general superintendent who shall see that records are kept and be responsible for the enforcement of the law in all parts of the State. Both of these defects are remedied in the Connecticut law (see Appendix), and the work of combating the disease seems to have started off in that State with a vigor and thoroughness that is commendable, 283,782 trees having been inspected and 28,647 condemned in 1893.

The results of the rooting-out process obtained in other States than Michigan are less striking, either because the laws have not been enforced very generally or because they have been in operation only a short time.

The greatest difficulty in the way of enforcing a law of this kind is the desire on the part of owners to market fruit from affected trees. This opposition disappears as soon as it is made a misdemeanor to sell such fruit or buy it for sale, and consequently a clause of this kind should form part of all yellows laws. Provision should also be made in such laws for the destruction of diseased trees occurring in waste places and in villages and cities. It is important also that records should be kept each year of the number of trees examined and the number destroyed, so that in the future there may be a sounder basis for judgment as to the efficacy of the law.

By way of prevention several different lines of procedure have been suggested. Notable among these is the return to the soil of plant foods supposed to have been exhausted to such a degree as to induce yellows. In view of the wide distribution of this disease and its occurrence on a great variety of soils, this seemed hardly probable, although supported by some men of acknowledged ability. This view must now be abandoned, a comprehensive series of experiments planned to settle this question and continued over a period of four years having shown conclusively that blocks of trees heavily fertilized and making a rapid growth are not secure from the disease, but are quite as likely to be

attacked as those left untreated.* In some of these experimental orchards the cases increased with an increasing number of treatments or became more speedily numerous on the treated portions, while in none of them, even when great quantities of fertilizers were used, was there any indication that the progress of the disease was stayed. These treatments were made in Maryland and Delaware. They included the use of lime, wood ashes, kainit and muriate of potash, dissolved boneblack and bone ash, nitrate of potash, nitrate of soda, sulphate of ammonia, tobacco dust, guano, dried blood, and stable manure. They were conducted in fifteen orchards, embracing more than 16,000 trees, and the trees under actual treatment covered an area of over 40 acres, occupying a variety of soils. It is necessary, therefore, to consider other expedients.

Some have held that the trouble originates exclusively in the nursery, and that the renewal of the orchards with trees having a "healthy constitution" would soon put an end to the ravages of the disease. Time, however, has shown that neither untainted buds nor sound stocks afford any considerable protection. This is true even when an earlier fall of the leaves and ripening of the wood is secured by working the peach upon plum or apricot stocks. In one of the Department experiments buds were taken in a region free from yellows, were worked upon well-rooted Marianna plum cuttings, and after a year's growth were set out in localities much subject to yellows. Most of these trees grew well for two or three years, but then began to die, some with symptoms of yellows and others from a want of proper union between stock and root. There could have been no constitutional taint in these trees, because the parent trees were kept under observation four years, during which time they remained free from disease, as did also the plums from which the cuttings were made, and all other peach trees in that vicinity.

PEACH ROSETTE.

DISTRIBUTION.

The rosette exists in the vicinity of Manhattan, Kans., in many parts of northern Georgia, and in a small part of western South Carolina, as shown approximately on the map accompanying this bulletin. It has also been reported from Arkansas. This disease occurs in peaches and almonds, and something very similar, if not identical, is common in plum trees, both wild and cultivated, but what is here detailed relates only to the peach.

The disease seems to have been present in Georgia only about fifteen years. If it occurred longer ago there is no conclusive evidence of it, and certainly it did not attract general attention or cause uneasiness until quite recently. During the last five or six years it has destroyed

* Bull. No. 4, Division of Vegetable Pathology.

many trees in Georgia and is now present in more than twenty counties of that State, being common not only in budded and seedling orchards, but also in seedlings growing in the fields and by the wayside.

DISTINGUISHING CHARACTERS.

Rosette clearly belongs to the same type of disease as yellows, but its first stages are more striking and its progress is much more rapid. It may first attack part of a tree and then the remainder, the same as yellows, but it is more likely to appear at once in the whole tree and generally in early spring. In trees attacked in this manner all of the leaf buds grow into compact tufts or rosettes. These rosettes, although seldom more than 2 or 3 inches long, usually contain several hundred small leaves. One of these rosettes is shown in fig. 5, and the



FIG. 5.—A single rosette.

appearance of the whole tree at the end of June is shown in fig. 6. A tree thus attacked always dies the following autumn or winter. When part of a tree is first attacked that part dies as above described, and the remainder shows symptoms the next spring, to die in turn after about six months.

The prevailing color of the foliage is yellowish green or olivaceous. The older leaves at the base of the tufts are largest and frequently grow to a length of several inches, but have inrolled margins and a peculiar stiff appearance, due to the fact that they are straighter than healthy leaves. These outer leaves turn yellow in early summer and drop as readily as though it were autumn, while the inner leaves of the rosette are still green and delicate. The compact bunching of the leaves is very conspicuous and makes the trees look quite unlike those affected by yellows. Where a tree is attacked in all parts it matures no fruit. In all the cases which have been noticed the fruit borne by affected trees either shrivels while green and drops off or else ripens naturally. No premature peaches have been seen in Georgia except such as were due to the girdling of the trunk by borers.

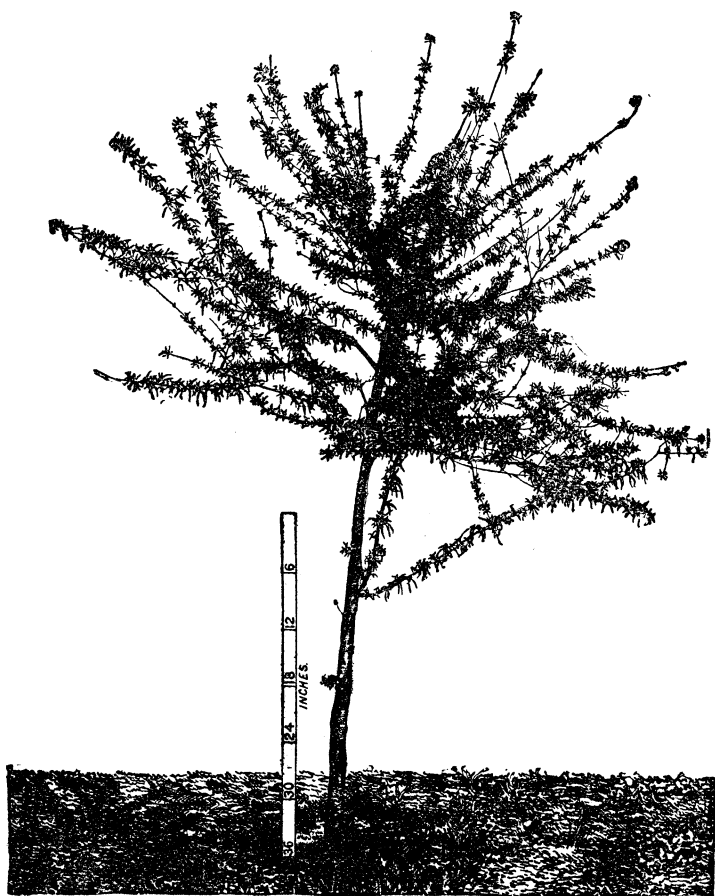


FIG. 6.—A budded tree attacked in spring and photographed in June.

In the absence of premature, red-spotted fruit, in the severity of the disease from the outset, and in its very rapid progress it is quite unlike

yellows, which is decidedly chronic, and the first slight symptoms of which usually occur in very green and thrifty trees and are frequently overlooked the first season.

HOW SPREAD.

The rosette is readily and quickly communicated either by bud inoculation or by root-grafting. The only difference in the latter case is that the disease requires a somewhat longer time for its appearance in the top of the tree. In Department experiments carried on in Georgia the first slight symptoms appeared in many stocks soon after the insertion of the diseased buds, i. e., within two months, while in less than a year more than 100 trees became diseased in all parts, as shown in fig. 7.



FIG. 7.—Rosette induced in a seedling by inoculation.

Two diseased buds were inserted into the trunk of this tree, at the points indicated (X and X'), June 21, and the photograph was made on June 6 of the following year. A curious fact in connection with this experiment is that 4 trees out of 125 entirely escaped infection. These were like the rest, except that the diseased buds which had been inserted into their trunks failed to unite. Their immunity was consequently attributed to this fact, and subsequent experiments confirmed the belief, showing that simple contact is not sufficient, but that, as in the

case of yellows, there must be an organic union between the diseased tissue and the healthy stock in order to transmit the disease. It is surprising, however, how small a fragment will convey the disease if it can be induced to unite with the stock. Other methods of spread are not known, but such must certainly exist. In view of the failure to induce the disease by simple contact of diseased tissues with healthy ones, even when this was prolonged and close, it does not seem likely that the contagion is carried by birds or insects, and it is therefore possible that the disease may enter through the roots. Experiments have shown conclusively that the virus of this disease requires a period of some months to penetrate into all parts of a tree, and that its internal movement is manifested within a few months by external symptoms. This is true both of trees infected artificially and of those which contract the disease naturally. In the former the symptoms first appear near the inserted bud, and subsequently in remoter parts of the tree. In the latter, when the disease is severe on one side of a tree, the tissues on the other side may still be entirely free from it. This was suggested by the fact that the top on one side of a tree often seemed entirely healthy, while the other side and the whole base were badly diseased, and it was shown to be true by the removal of buds, which were grafted on plums and grew into healthy trees, while the disease passed over into the parent limbs and affected all parts the following spring.

PREVENTIVE MEASURES.

What has been said respecting the prevention of yellows applies also to rosette. Nothing is known as to the cause of this disease, but the same remark applies to such dangerous contagious diseases as smallpox and hydrophobia, and the time has certainly passed when such an objection can be urged as a good reason for inaction.

All diseased trees should be dug out and burned. This ought to be done in the spring, as soon as the rosette can be detected, owing to the fact that the leaves fall very readily in midsummer and are possibly a means of spreading the disease. Particular care should also be taken to destroy rosetted trees occurring on the borders of forests and in waste places generally, and, of course, in any thorough work of this kind the plum should be included, although not enough cross-inoculations have been made to put the identity of the plum disease and rosette entirely beyond doubt. The disease is virulently contagious, and, as in the case of yellows, if peach-growing is to continue successful for any great length of time in infected regions, it can be only by means of a well-directed, vigorous, and united effort.

APPENDIX.

THE CONNECTICUT YELLOWS LAW.

AN ACT providing for a commission on peach yellows.

[General Assembly, January session, A. D. 1893.]

Be it enacted by the Senate and House of Representatives in general assembly convened:

SEC. 1. The State board of agriculture shall, within thirty days from the passage of this act, appoint a commissioner on peach yellows, to hold office during the pleasure of said board. Said commissioner may, with the approval of said board and under the provisions of this act, adopt and carry out such plans as may be deemed necessary for the eradication of the disease, common to peach trees, known as peach yellows.

SEC. 2. At all joint meetings of said board and said commissioner, for the purpose of conference, the commissioner shall receive pay from the board for his expenses only. Said commissioner may, with the approval of said board, appoint one or more deputies in each county; and when employed in the performance of duties imposed by this act, said commissioner and his deputies shall receive from the State, upon presentation to the comptroller, of bills duly sworn to, audited by the auditing committee of the board of agriculture, and approved by the Governor, five dollars per day and their expenses.

SEC. 3. Any peach, almond, apricot, or nectarine tree diseased by the yellows, and all fruit from any such diseased tree, is hereby declared a public nuisance, and it shall be the duty of said commissioner or any deputy, under such regulations as the State board of agriculture may adopt or approve of, to order such trees or such fruit destroyed, and upon the failure of the owner to obey such order, to destroy such trees or fruit, and no damage shall be paid to such owner on account of such destruction.

SEC. 4. Any person may, when ordered to destroy any tree or fruit condemned by the said commissioner or deputy, appeal to the State board of agriculture, and said board shall appoint a committee of three experts, which committee shall not include the person who, acting as commissioner or deputy, ordered such tree or fruit destroyed, and the decision of such committee shall be final.

SEC. 5. Any person who shall, while such an appeal is pending, sell any tree from a nursery where there are found to be diseased trees, or any fruit from such tree; or who shall, without such appeal, or after such final decision, refuse to destroy such tree or fruit, shall be fined not less than one hundred nor more than five hundred dollars.

SEC. 6. Any person that shall knowingly buy, for the purpose of selling, or shall sell or offer for sale, any fruit from such diseased trees, shall be fined not less than ten nor more than one hundred dollars.

SEC. 7. For the purpose of investigation or for the purpose of destroying trees or fruit known to be diseased, the said commissioner and his deputies may enter any

premises; and any person who shall prevent or attempt to prevent such entry shall be punished by a fine of not less than ten nor more than one hundred dollars, or imprisoned in a common jail not less than ten nor more than sixty days, or both.

SEC. 8. Prosecutions for violation of this act may be brought before justices of the peace, or any city, borough, town, police, or common pleas court having criminal jurisdiction, by any prosecuting officer, or by the commissioner on peach yellows, or any of his deputies, and for such purpose said commissioner and his deputies shall have all the powers of grand jurors.

SEC. 9. This act shall take effect upon its passage.

Approved June 14.

THE PENNSYLVANIA YELLOWS LAW.

AN ACT to prevent the spread of the disease in peach trees known as the yellows.

SEC. 1. *Be it enacted, etc.,* That it shall be unlawful for any one to knowingly or willfully keep any peach, almond, apricot, or nectarine tree infected with the contagious disease known as the yellows, or to offer for sale or shipment or to sell or ship to others any of the fruit thereof; both tree and fruit so infected shall be subject to destruction as public nuisances as hereinafter provided, and no damages shall be awarded in any court in this State for entering upon premises and destroying such diseased trees and fruit, if done in accordance with the provisions of this act; and it shall be the duty of every person, as soon as he becomes aware of the existence of such disease in any tree or fruit owned by him, to forthwith destroy or cause the same to be destroyed.

SEC. 2. In any township, borough, or city of this State in which such contagious disease exists, or in which there is good reason to believe it exists or danger may be justly apprehended of its introduction, as soon as such information becomes known to any supervisor of such township or to any highway or street commissioner of such borough or city, it shall be the duty of said supervisor, highway or street commissioner to appoint forthwith, three competent freeholders of said township, borough, or city as commissioners, who shall hold office during the pleasure of said supervisor or highway or street commissioner, and such order of appointment and of revocation shall be entered at large upon the records of such township, borough, or city.

SEC. 3. It shall be the duty of said commissioners, within ten days after appointment as aforesaid, to file their acceptance of the same with the clerk of said township, borough, or city, and said clerk shall be *ex officio* clerk of said board of commissioners, and he shall keep a correct record of the proceedings of said board in a book to be provided for the purpose, and shall file and preserve all papers pertaining to the duties and actions of said commissioners or either of them, which shall be a part of the records of said township, borough, or city.

SEC. 4. It shall be the duty of the commissioners or any one of them, upon or without complaint, whenever it comes to their notice that the disease known as yellows exists or is supposed to exist within the limits of their township, borough, or city, to proceed without delay to examine the trees or fruit supposed to be infected, and if the disease is found to exist, a distinguishing mark shall be placed upon the diseased trees and the owner notified personally or by a written notice left at his usual place of residence, or if the owner be a nonresident, by leaving the notice with the person in charge of the tree or fruit, or the person in whose possession said trees or fruit may be. The notice shall contain a simple statement of the facts as found to exist, with an order to effectually remove and destroy, by fire or otherwise, the trees so marked and designated, within ten days, Sundays excepted, from the date of the service of the notice, and in case of fruit so infected, such notice shall require the person in whose possession or control it is found to immediately destroy the same or

cause it to be done. Said notice and order shall be signed by the full board of commissioners.

SEC. 5. Whenever any person shall refuse or neglect to comply with the order to remove and destroy the trees marked by the commissioners as aforesaid, it shall become the duty of the commissioners to cause said trees to be removed and destroyed forthwith, employing all necessary aid for that purpose; the expense of such removal and destruction of trees to be a charge against the township, borough, or city, and for the purpose of said removal and destruction the said commissioners, their agents and workmen, shall have the right and power to enter upon any and all premises within their township, borough, or city.

SEC. 6. If any owner neglects to remove and destroy or cause to be removed and destroyed as aforesaid, such diseased trees and fruit after such examination and notification and within the time hereinafter [hereinbefore] specified, such person shall be deemed guilty of a misdemeanor, and punished by a fine not exceeding ten dollars, or by imprisonment in the county jail not exceeding ten days, in the discretion of the court; and any justice of the peace of the township or borough, or any alderman in any city of this Commonwealth where such fruit is sold, shipped, or disposed of as aforesaid shall have jurisdiction thereof.

SEC. 7. The commissioners shall be allowed for services under this act, two dollars for each full day and one dollar for each half day for the time actually employed, and other reasonable charges and disbursements hereunder, to be audited, as well as any other charges and disbursements under this act, by the board of township auditors or the auditors of such borough or the controller of such city, to be paid to said commissioners as other township, borough, or city accounts are paid. Such fees and all reasonable charges and disbursements of said commissioners in each case, may be recovered by the township, borough, or city, in the name of the supervisor or highway or street commissioner, from the owner of the diseased fruit or trees on account of which such fees, charges, and disbursements became payable or were incurred.

SEC. 8. This act shall take effect immediately upon its approval by the Governor.

Approved the 26th day of May, A. D. 1891.